a WHAT IS CLAIMED IS:

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1. A sheathed element glow plug having an ionic current sensor having a housing (3) and a rod-shaped heating element (5) situated in a concentric bore in the housing (3), the heating element (5) having at least one insulation layer (11), a first feeder layer (7), and a second feeder layer (9); the first feeder layer (7) and the second feeder layer (9) being connected by a web (8) on the combustion chamber-side end (6) of the heating element (5), the first and second feeder layers (7, 9) and the web (8) being made of an electrically conducting ceramic material, and the insulation layer (11) being made of an electrically insulating ceramic material, the heating element (5) having at least one ionic current detection electrode (7, 9, 33),
wherein the at least one ionic current detection electrode (7, 9, 33) is made of an electrically conducting ceramic material.

2. The sheathed element glow plug according to Claim 1, wherein at least one part of the first and/or second feeder layers (7, 9) functions as an ionic current detection electrode.

3. The sheathed element glow plug according to Claim 2, wherein a first electric terminal (15) and a second electric terminal (17) are provided on the end of the heating element (6) remote from the combustion chamber, the first electric terminal (15) being connected to the end of the first feeder layer (7) remote from the combustion chamber, and the second electric terminal (17) being connected to the end of the second feeder layer (9) remote from the combustion chamber.

4. The sheathed element glow plug according to Claim 1, wherein the ionic current detection electrode (33) runs inside the insulation layer (11) or is applied to the insulation layer (11).

5. The sheathed element glow plug according to Claim 4, wherein the ionic current detection electrode (33) runs laterally on the surface of the heating element in the direction remote from the combustion chamber in front of the area in which the first and second feeder layers are connected to the combustion chamber-side end of the heating element (6).

6. The sheathed element glow plug according to Claim 4, wherein the ionic current detection electrode (33) extends in the insulation layer (11) to the combustion chamber-side end (6) of the heating element (6), the insulation layer (11) running to the combustion chamber-side end (6) of the heating element (5).

7. The sheathed element glow plug according to one of Claims 4 through 6,
wherein the first feeder layer (7) is connected on the end remote from the combustion chamber to a first electric terminal (15), and the end of the ionic current detection electrode (33) remote from the combustion chamber is connected to a second electric terminal (17).

8. The sheathed element glow plug according to one of Claims 4 through 7,
wherein the second feeder layer (9) is connected to ground via the housing (3).

9. The sheathed element glow plug according to one of Claims 1 through 8,
wherein a tubular spacer sleeve (27) made of an electrically insulating material is situated within the concentric bore of the housing (3) on the end of the heating element (6) remote from the combustion chamber.

10. The sheathed element glow plug according to one of Claims 1 through 9,

wherein the insulation layer (11), the first feeder layer (7), the web (8), the second feeder layer (9) and the ionic current detection electrode (7, 9, 33) are made of ceramic composite structures accessible by a sintering operation in one or more steps using at least two of the compounds Al_2O_3, $MoSi_2$, Si_3N_4 and Y_2O_3.

11. The sheathed element glow plug according to one of Claims 1 through 9,
wherein the insulation layer (11), the web (8), the first feeder layer (7), the second feeder layer (9) and the ionic current detection electrode (7, 9, 33) are made of a composite precursor ceramic, the matrix material including polysiloxanes, polysilsequioxanes, polysilanes or polysilazanes which may be doped with boron, nitrogen or aluminum and are produced by pyrolysis, the filler being formed from at least one of the compounds Al_2O_3, $MoSi_2$, SiO_2 and SiC.

12. A method of operating a sheathed element glow plug having an ionic current sensor according to Claim 1,
wherein during a glow phase, an electric voltage is applied to the first and second feeder layers (7, 9), the first feeder layer (7) and the second feeder layer (9) being connected to different voltage potentials, and an electric voltage having the same voltage potential is applied to the electrodes for ionic current detection (7, 9) after the end of the glow phase.

13. The method of operating a sheathed element glow plug having an ionic current sensor according to Claim 1,
wherein during the glow phase electric voltages having different voltage potentials are applied to the first and second feeder layers (7, 9) and at the same time to the ionic current detection electrode (33).

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